

I CLAIM AS MY INVENTION¹¹

PATENT CLAIMS

1. Engraving element of an electronic engraving machine for engraving printing forms, composed of:

- a shaft (6) oscillating around the longitudinal axis with small rotational angles;
- a drive system (1, 7) for the shaft (6);
- a lever (14) attached to an end of the shaft (6) with an engraving stylus (15) for engraving the printing form;
- a restoring element (10) for the shaft (6);
- a bearing (9) for the shaft (6); and
- a damping mechanism (8) for the shaft (6) having a damping element secured to the shaft (6) as well as a stationary damping chamber filled with a damping medium.

characterized in that

- the damping medium is a ferro-fluidic fluid.

2. Engraving element according to claim 1, characterized in that the damping mechanism (8) is not fashioned rotationally symmetrical relative to the axial direction of the shaft (6).

3. Engraving element according to claim 1, characterized in that the damping element (17) is provided with through holes (27) proceeding in axial direction of the shaft (6).

4. Engraving element according to claim 1, characterized in that the bearing (9) for the shaft (6) is fashioned as spoke bearing.

5. Engraving element according claim 4, characterized in that the spoke bearing (9) is composed of the following components:

- an inner ring (35, 35') surrounding the shaft (6) and connected to the shaft (6);

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- a stationary outer ring (36) or, respectively, outer ring segment (36') surrounding the shaft (6) at least in regions and spaced from the inner ring (35, 35'); and
 - a plurality of leaf springs (37) proceeding radially relative to the shaft (6) whose ends are respectively connected to the inner rings (35, 35') and to the outer ring (36) or, respectively, outer ring segment (36').

6. Engraving element according to claim 4, characterized in that the damping mechanism (18) and the spoke bearing (9) are structurally united with one another.

7. Engraving element according to claim 1, characterized in that the drive system (1, 7) for the shaft (6) is fashioned as piezoelectric or magnetostrictive drive element.

8. Damping mechanism for an engraving element for engraving printing forms, composed of

- a damping element (17) that is secured to a shaft (6) of the engraving element oscillating around the longitudinal axis with small rotational angles, and
- a stationary damping chamber filled with a damping medium, characterized in that
- the damping medium is a ferro-fluidic fluid.

9. Damping mechanism according to claim 8, characterized in that it is not fashioned rotational-symmetrically to the axial direction of the shaft (6).

10. Damping mechanism according to claim 8, characterized in that the damping element (17) is provided with through holes (27) proceeding in axial direction of the shaft (6).

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